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PROCEEDINGS
OF
THE ROYAL SOCIETY.

1841.

No. 50.

November 18, 1841.

Lieutenant-Colonel EDWARD SABINE, R.A., V.P., in the Chair.

The following gentlemen were, by ballot, elected Auditors of the Treasurer's Accounts, on the part of the Society, viz. Neil Arnott, M.D., Francis Baily, Esq., William Hasledine Pepys, Esq., George Rennie, Esq., and Charles Wheatstone, Esq.

Captain William Allen, R.N., and Lieut.-Colonel Sir J. M. Frederic Smith, R.E., were balloted for, and duly elected Fellows of the Society.

The following papers were read :—

1. "Variations de la déclinaison et intensité magnétique horizontale observées à Milan le 28 et 29 Mai, le 23 et 24 Juin, le 21 et 22 Juillet, le 27 et 28 Août, et le 22 et 23 Septembre 1841." Par Sig^r. Carlini, For. Memb. R.S.

2. "Variations de la déclinaison magnétique et de l'intensité magnétique horizontale observées à Bruxelles le 23 et 24 Juin, et le 21 et 22 Juillet 1841." Par M. A. Quetelet, For. Memb. R.S.

3. "Meteorological Register kept on board the Earl of Hardwicke, during a voyage from London to Calcutta and back to London, by Captain Alexander Henning." Communicated by Sir John F. W. Herschel, Bart., F.R.S., &c.

4. "Meteorological Register kept at Port Arthur, Van Diemen's Land, by Deputy-Assistant-Commissionary-General Lempriere, from Feb. 1, 1840, to Feb. 1, 1841." Communicated by Captain Beaufort, R.N., F.R.S., Hydrographer to the Admiralty.

5. "Term Observations of the Variation, Magnetic Declination, Horizontal Intensity, and Inclination at Prague, for June, July, August and September 1841." By Professor Kreil. Communicated by S. Hunter Christie, Esq., Sec. R.S.

November 25, 1841.

SIR JOHN WILLIAM LUBBOCK, Bart., V.P. and Treas.,
in the Chair.

The Right Honourable the Earl of Lovelace was balloted for, and duly elected a Fellow of the Society.

The following papers were read, viz.—

1. "Explanation of the construction, positions, comparisons, and times of observation, of the Meteorological Instruments at the Royal Observatory, Greenwich, with which the Observations have been made that are contained in the sheets of Meteorological Observations, forms 1 and 2, for each month from 1840 November to 1841 July, both inclusive, sent to the Royal Society in 1841, October 26." By George Biddell Airy, Esq., M.A., F.R.S., Astronomer Royal.

2. "On the Laws of the rise and fall of the Tides in the River Thames." By George Biddell Airy, Esq., M.A., F.R.S., Astronomer Royal.

The conclusions arrived at by the author, and stated in this paper, were derived from an extensive series of observations of the tides, made, on his suggestion, at the Royal Victualling Yard at Deptford, under the superintendence of Captain Shireff, R.N. The object of the first series of observations was simply to ascertain the times of high and low water, for the purpose of ascertaining the duration of the rise and fall of the tide : the height of the water was observed at every quarter of an hour, night and day, during half a lunation. The curves representing the law of rise and fall of the water were found to be different for high tides and for low tides ; and both are sensibly different from the line of sines. The author then investigates mathematically the motion of a very long wave, such as a tide-wave, in a rectangular canal, whose section is everywhere the same, on the supposition that the extent of vertical oscillation bears a sensible proportion to the mean depth of the water ; and deduces an expression for the vertical elevation of a particle at the surface. This expression supposes the canal unlimited at the end farthest from the sea. If the canal be stopped by a barrier, the expression changes its form. The formulæ obtained by the author enable him to explain a circumstance, hitherto perplexing, namely, that the age of the tide is different as inferred from the height of the high water, or from the time of high water ; being always greater in the former mode of estimation.

3. "Register of Tides, observed at Coringa, from January 1st to June 30th, 1841."

4. "Meteorological Journal, from the 20th April 1840 to the 29th April 1841. Kept at the Falkland Islands on board H.M. Ketch, Arrow."

5. "Daily Thermometrical Observations at Cape Palmas, for May 1841."

These last three papers were communicated to the Society by the direction of the Lords Commissioners of the Admiralty.

November 30, 1841.

At the Anniversary Meeting,

SIR JOHN WILLIAM LUBBOCK, Bart., V.P. and Treas.,
in the Chair.

Francis Baily, Esq., on the part of the Auditors of the Treasurer's Accounts, reported, that the total receipts during the last year, inclusive of a balance of 937*l.* 19*s.* 7*d.*, carried from the account of the preceding year, amounted to 3874*l.* 14*s.* 9*d.*; and that the total payments in the same period amounted to 3265*l.* 12*s.* 1*d.*, leaving a balance in the hands of the Treasurer of 609*l.* 2*s.* 8*d.*

The thanks of the Meeting were given to the Auditors, for the trouble they have taken in examining the Treasurer's accounts.

The thanks of the Meeting were also voted to the Treasurer, for his services to the Society.

The following Letter from the President addressed to the Society, was read:—

GENTLEMEN,

I regret extremely that my absence from England will prevent my having the honour and pleasure of meeting you at the Anniversary of the Royal Society. The Council will therefore perform the duty, which would otherwise have fallen on me, of adverting to the continued prosperity of our Society, to the losses which it has, however, undergone in the course of nature, and to the adjudication of our Medals. This duty I am sure that they will perform better than I could do, so that, in that point of view, you will be no losers; the loss of a great pleasure in meeting so many scientific friends will fall on myself; but I look forward to the spring, when I hope again to meet you, both in my own house and at our ordinary weekly Meetings. Meanwhile the Royal Society has, as it ever will have, my most earnest wishes for its prosperity and its success, in carrying forward the great object for which it was established—the increase of human knowledge in every department of physical science.

The Vice-President in the Chair informed the Meeting that the Council had voted the following Address to Her Majesty the Queen:—

"To the Queen's most Excellent Majesty.

"The humble Address of the President, Council, and Fellows of the Royal Society of London for improving Natural Knowledge.

"MOST GRACIOUS SOVEREIGN,

"We, Your Majesty's most dutiful and loyal subjects, the President, Council, and Fellows of the Royal Society of London for im-